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	<i>DB=PGPB,USPT,EPAB,JPAB,DWPI; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L23	L21 and l3	14
<input type="checkbox"/>	L22	l2 and L21	2
<input type="checkbox"/>	L21	l15 and L20	54
<input type="checkbox"/>	L20	l10 and L19	597
<input type="checkbox"/>	L19	l11 and L18	3121
<input checked="" type="checkbox"/>	L18	L2 or l3 or l4	13451
<input type="checkbox"/>	L17	L16 not l5	3
<input type="checkbox"/>	L16	l2 and L15	4
<input checked="" type="checkbox"/>	L15	504.clas.	16581
<input type="checkbox"/>	L14	l2 same L13	18
<input type="checkbox"/>	L13	pesticide\$9 or insecticide\$9 or herbicide\$9 or acaricide\$9 or nematocid\$9 or fungicide\$9 or antifung\$9 or algicide\$9 or algaecid\$9 or antialga\$9	240783
<input checked="" type="checkbox"/>	L12	"pres mud"	2
<input type="checkbox"/>	L11	vermicompost or peat or (rice husk) or vermiculite or cellulose\$4 or perlite or polyvinylpyrrolidone or (polyvinyl pyrrolidone) or talc	572979
<input checked="" type="checkbox"/>	L10	fertilizer\$9	116408
<input type="checkbox"/>	L9	L7 not l6	14
<input checked="" type="checkbox"/>	L8	L6 not l5	1
<input type="checkbox"/>	L7	L2 and l4	16
<input type="checkbox"/>	L6	L2 and l3	3
<input type="checkbox"/>	L5	l2 and l3 and L4	2
<input type="checkbox"/>	L4	garlic or (allium sativum)	10754
<input checked="" type="checkbox"/>	L3	neem or azadirachta	1064
<input type="checkbox"/>	L2	urine\$5 with l1	1718
<input type="checkbox"/>	L1	cow\$1 or cattle or bovine\$1	190061

END OF SEARCH HISTORY

# Handbook of Plants with Pest-Control Properties

Michael Grainge and Saleem Ahmed

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*with the special assistance of*

Ponciano Epino  
Eric Mercadejas  
Boniface Peiris  
Xenia Wolff

*computer programming by*

Hong-chun "June" Yang  
D. Patricia Goddard



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## II. Description of the Plant and Its Pest-Control Ingredients

Some important characteristics of the plants and of their pest-control properties are indicated in a horizontal format under the headings A-O. Not all information was available in many cases; corresponding headings are then excluded. Conversely, multiple listings of certain headings denote multiple characteristics. Thus, for example, the first plant, *Abelmoschus esculentus*, does not have headings E, F, G, K, and L, but has four listings under M, 3 under N, and 2 under O. The following codes are used under the headings A-O.

### Plant Characteristics

#### A Plant Life Cycle

1 = perennial                      2 = biennial                      3 = annual                      4 = other

#### B Type of Plant

1 = tree                      5 = creeper                      9 = aquatic/semiaquatic plant  
2 = shrub, subshrub                      6 = herb                      10 = parasitic/epiphytic plant  
3 = woody climber                      7 = woody herb  
4 = herbaceous vine                      8 = cactus

#### C Plant Classification

1 = fungus                      4 = moss                      7 = cycad  
2 = alga                      5 = early vascular                      8 = conifer  
3 = liverwort                      6 = fern                      9 = flowering plant

#### D Climate in Which Plant Is Commonly Found

1 = tropical                      5 = arid                      9 = hotlands  
2 = subtropical                      6 = Mediterranean                      10 = cosmopolitan  
3 = temperate                      7 = arctic/subarctic                      (1 + 2 + 3 categories)  
4 = semiarid                      8 = alpine

#### E Problem Soils to Which Plant Is Adaptable

1 = acid sulfate soils                      5 = calcareous soils                      9 = rocky areas  
2 = other acid soils                      6 = other alkaline soils                      10 = waterlogged areas  
3 = sodic soils                      7 = sandy soils                      11 = peat/bog/marshy areas  
4 = saline soils                      8 = heavy clays                      12 = infertile soils

### Description of the Active Materials

#### F Effective Life

##### Consideration

1 = material breaks down in sunlight                      2 = plant has seasonal activity

##### Duration for Which Activity Is Maintained in the Field

3 = >2 months                      5 = 2 weeks                      7 = 2-3 days  
4 = 1 month                      6 = 1 week                      8 = 1 day or less

##### Duration for Which Activity Is Maintained in Storage

9 = >1 year                      12 = 2-7 weeks                      15 = <24 hours  
10 = 6-11 months                      13 = 4-13 days  
11 = 2-5 months                      14 = 1-3 days

#### G Maximum Dilution of the Active Principle for Effectiveness

1 = 1:2                      4 = 1:100                      7 = 1:100,000  
2 = 1:5                      5 = 1:1,000  
3 = 1:10                      6 = 1:10,000

**H Type of Pest-Control Activity Observed**

We have retained descriptors used by the authors, although sometimes these are vague (for example, antivermin). The "anti" category (for example, anti-insect, antimite) has also been used when the mode of action was not defined. An X after a descriptor (for example, No. 12 below) indicates that the pest controlled is an animal pest. No. 20 includes antimicrobial action when the microbes controlled are not defined.

1 = anti-insect	12 = antimite-X	25 = rodenticidal
2 = insecticidal	13 = antitick	25a = rodent repellent
2a = contact poison	14 = antifungal	26 = antifertility
2b = stomach poison	15 = antifungal-X	(rodents)
3 = growth inhibitor	16 = antinematode	27 = antivermin
4 = antifeedant	17 = antinematode-X	28 = antisnail/leech
5 = repellent	18 = antibacterial	29 = pest-free
6 = attractant	19 = antibacterial-X	30 = synergistic
6a = trap crop	20 = antibiotic/anti-septic/antimicrobial	31 = adjuvant
7 = chemosterilant	21 = antiviral	32 = fish poison
8 = termite resistant	22 = antiviral-X	33 = poisonous
9 = insectivorous	23 = herbicidal	34 = anaesthetic/sedative
10 = sticky trap	24 = allelopathic	35 = narcotic
11 = antimite		

**I Plant Part(s) Used/Responsible for the Pest-Control Activity**

1 = whole plant	8 = flowers	15 = shoots/buds/tops
2 = roots/tubers/rhizomes	9 = fruit/fruiting body	16 = aerial parts
3 = bulbs/corms	10 = seeds/nuts/spores	17 = trichomes
4 = bark	11 = pods	18 = oilcake/residue
5 = wood/pulp	12 = oil	19 = tissue culture
6 = stem/branches	13 = gum/resin	20 = crop residue
7 = leaves	14 = sap/latex/juice	

**Method of Preparation/Extraction of the Pest-Control Material****J a Nonchemical Preparation**

1 = no preparation needed	4 = powdering of the plant part
2 = drying of the plant part	5 = tapping for sap/latex
3 = aqueous extraction	6 = pressing/distilling for oil
3a = crude extraction, using village facilities	

**J b Chemical Extraction; Solvent Used**

7 = ether	11 = petroleum ether	15 = kerosene
8 = alcohol	12 = methanol	16 = chloroform
9 = ethanol	13 = benzene	17 = ethyl acetate
10 = acetone	14 = ethyl ether	

**Method of Application of the Pest-Control Material****K Method of Use**

1 = merely planting	6 = spraying the preparation
2 = mixing with bait	7 = fumigating/burning the plant part
3 = surface spreading	8 = rubbing the material on the plant
4 = using as mulch	9 = mixing with stored produce
5 = dusting on the crop	

***Environmental Conditions in Use*****L Cautions in Use**

- |   |                                   |
|---|-----------------------------------|
| 1 = material is toxic to honeybees      | 4 = material is a contact poison  |
| 2 = material is toxic to grazing cattle | 5 = the plant is a potential weed |
| 3 = material is an oral poison          |                                   |

***Additional Economic Value of the Plant*****M Other Plant Uses/Sources**

- |   |                                       |
|---|---------------------------------------|
| 1 = as food/drink for humans            | 14 = used as a spice/flavoring        |
| 1a = is edible after cooking            | 15 = for soap making/as a soap        |
| 2 = as animal food substitute           | 16 = is a source of dye/ink           |
| 3 = provides fiber                      | 17 = is a source of perfume/incense   |
| 4 = provides materials to make tools    | 18 = is a source of honeybee nectar   |
| 5 = provides medicine/drugs             | 19 = for wood carving/in carpentry    |
| 6 = is a source of fuel/light           | 20 = in paints/varnish                |
| 7 = as a wind break                     | 21 = is a source of tannin            |
| 8 = as a sand-binder                    | 22 = is a source of paper             |
| 9 = for erosion control as a cover crop | 23 = is a source of beads for jewelry |
| 10 = as a fertilizer                    | 24 = used in weaving                  |
| 11 = for soil reclamation               | 25 = is a source of wood preservative |
| 12 = fixes N <sub>2</sub>               | 26 = is a source of rubber            |
| 13 = is an ornamental plant             | 27 = is a source of sulfur            |
|   | 28 = is a source of cooking oil/fat   |

**N Plant Parts Used for Food by Humans (same codes as I above)**

**O Plant Parts Used for Medicine/Drugs (same codes as I above)**

**III. Organisms Controlled (OC)**

Under the heading OC we have listed alphabetically pests that are reportedly controlled by the plant. Because of their specific nature, the type of pest-control activity (code H) and plant part(s) responsible for the pest-control action (code I) are listed against each pest here rather than being listed in the horizontal format described above. Reference(s) for each entry are then listed in parentheses.

**IV. Other References (OR)**

Listed here (in parentheses) are references that do not name any specific pest but describe some pest-control properties of the plant under consideration (under codes H and I).

**V. Active Principles (AP)**

The following codes describe the active principles found in the plants:

- |                  |                     |
|------------------|---------------------|
| Alk = alkaloids  | Sfr = sulfur        |
| Cou = coumarinds | Str = steroids      |
| Fla = flavanoids | Tan = tannins       |
| Sap = saponins   | Tri = triterpenoids |

The plant part in which these compounds are found is indicated using Code I, followed by references (in parentheses).

*Helminthosporium* sp. H-14, I-7 (480)  
*Ixodes redikorzevi* H-13, I-14 (87, 1133)  
*Myrothecium verrucaria* H-14, I-12 (185)  
*Phyllobius oblongus* H-4, I-7 (480)  
*Phytodecta fornicata* H-4, I-7 (480)  
*Pieris napi* H-5, I-? (1002)  
*Pieris rapae* H-5, I-? (1002)  
*Rhipicephalus rossicus* H-13, I-14 (87, 1133)  
 OR: H-19, I-3, 7 (497, 672, 704, 879, 880, 1166); H-20, I-12, 14 (504, 530); H-24, I-14 (569)  
 AP: Sfr=I-3 (1116); Tan=I-3 (1321)

---

*Allium cernuum* (Wild onion) Amaryllidaceae

B C D J M N  
 06 09 03 3a 01 03

OC: *Agrobacterium tumefaciens* H-18, I-7 (585) *Erwinia carotovora* H-18, I-7 (585)

---

*Allium fistulosum* (Spanish onion) Amaryllidaceae

A B C D M N  
 01 06 09 03 01 07

OC: Aphids H-1, I-1 (1241)

OR: H-19, I-? (172)

---

*Allium nipponicum* (Not known) Amaryllidaceae

B C D J M N  
 06 09 03 03 01 01

OC: *Drosophila hydei* H-2, I-2, 4, 7, 8 (101)

---

*Allium oleraceum* (Field garlic) Amaryllidaceae

B C D M  
 06 09 03 14

OC: *Locusta oleraceae* H-4, 5; I-7 (596)

---

*Allium sativum* (Garlic) Amaryllidaceae

A B C D F G J J J J J K K M M N N  
 01 06 09 10 14 03 03 04 06 09 12 05 06 01 05 03 07

OC: *Aedes aegypti* H-1, I-? (325)  
*Aedes nigromaculis* H-1, I-? (325)  
*Aedes sierrensis* H-1, I-1 (325)  
*Aedes triseriatus* H-1, I-? (325)  
*Agrobacterium tumefaciens* H-18, I-3 (1357)  
*Alternaria tenuis* H-14, I-7 (182, 426, 480, 783, 927)  
*Aspergillus niger* H-14, I-? (385, 783)  
*Botrytis allii* H-14, I-3, 12 (185, 426)  
*Callosobruchus chinensis* H-2b, I-3 (116); H-5, I-? (599)  
*Cephalosporium sacchari* H-14, I-? (927)  
*Ceratocystis ulmi* H-14, I-? (426)  
*Cercospora cruenta* H-14, I-3 (1122)  
*Cladosporium cucumerinum* H-14, I-? (425)  
*Cladosporium fulvum* H-14, I-12, 14 (185, 426)  
*Claviceps purpurea* H-14, I-12, 14 (185, 426)  
*Colletotrichum capsici* H-14, I-? (783)  
*Colletotrichum circinans* H-14, I-14 (935)  
*Colletotrichum lindemuthianum* H-14, I-12 (425, 935)  
*Colletotrichum trifolii* H-14, I-14 (935)  
*Corynebacterium flaccumfaciens* H-18, I-3 (1357)  
*Corynebacterium michiganense* H-18, I-3 (1081, 1357)  
*Culex peus* H-1, I-? (325)  
*Culex quinquefasciatus* H-1, I-? (1046)  
*Culex tarsalis* H-1, I-? (325)  
*Curvularia lunata* H-14, I-7 (182, 385, 927)  
*Curvularia perniseti* H-14, I-7 (480)  
*Dermacentor marginatus* H-13, I-? (1133)  
*Diplodia maydis* H-14, I-? (426)  
*Drechslera graminea* H-14, I-7 (182, 778, 927)

*Drechslera oryzae* H-14, I-3, 7, 8  
 (113, 432, 783)  
*Dysdercus cingulatus* H-1, I-?  
 (88, 124, 435)  
*Erwinia aroideae* H-18, I-? (1082)  
*Erwinia carotovora* H-18, I-3 (1357)  
*Fusarium culmorum* H-14, I-? (385)  
*Fusarium graminearum* H-14, I-12 (935)  
*Fusarium moniliforme* H-14, I-? (385, 783)  
*Fusarium nivale* H-14, I-? (182, 927)  
*Fusarium oxysporum* H-14, I-? (783)  
*Fusarium oxysporum*  
     f. sp. *conglutinans* H-14, I-? (426)  
     f. sp. *lycopersici* H-14, I-? (426)  
     f. sp. *udum* H-14, I-? (783)  
*Fusarium poae* H-14, I-? (385)  
*Fusarium* sp. H-14, I-? (1166)  
*Gibberella fujikuroi* H-14, I-? (426)  
*Glomerella cingulata* H-14, I-? (783)  
*Haemaphysalis punctata* H-13, I-? (87, 1133)  
*Helminthosporium* sp. H-14, I-7 (480)  
*Ixodes redikorzevi* H-13, I-? (87, 1133)  
*Lentinus lepideus* H-14, I-? (428)  
*Lenzites trabea* H-14, I-? (428)  
*Meloidogyne incognita* H-16, I-3 (100, 616)  
*Meloidogyne javanica* H-16, I-3 (100, 616)  
*Monilinia fructicola* H-14, I-? (425)  
*Mosquitoes* H-2, I-? (55)  
*Musca domestica* H-1, 5, I-1 (123, 889, 890)  
 OR: H-3, I-? (441); H-17, I-12 (166, 220); H-19, I-3, 10, 12, 14 (186, 399, 497, 659, 660, 672, 704, 755, 761, 980, 982, 1080, 1166, 1167, 1168, 1291); H-20, I-? (530)  
 AP: Alk, Sap, Tan=I-3 (1321)

---

*Allium schoenoprasum* (Chive) Amaryllidaceae  
     A B C D J M N  
     01 06 09 03 03 01 07  
 OC: Mosquitoes H-2, I-1 (98, 105)  
 OR: H-19, I-? (448)  
 AP: Alk=I-10 (1369); Sfr=I-10 (1116)

---

*Allium tricoccum* (Wild leek) Amaryllidaceae  
     B C D M N  
     06 09 03 01 03  
 OC: *Agrobacterium tumefaciens* H-18, I-7 (585) *Erwinia carotovora* H-18, I-7 (585)  
 AP: Alk=I-2 (1392)

---

*Allium tuberosum* (Chinese chive) Amaryllidaceae  
     A B C D M M N O  
     01 06 09 01 01 05 07 10  
 OC: Aphids H-1, I-1 (1241) Spider mites H-11, I-1 (1241)  
     *Phytophthora infestans* H-14, I-1 (1241)

---

*Alnus firma* (Alder genus) Betulaceae  
     A B B C D D J M  
     01 01 02 09 02 03 03 13  
 OC: *Drosophila hydei* H-2, I-2 (101)

-----  
*Avena sativa* (Oats) Poaceae

A B D J J M N  
 03 06 03 10 12 01 10

OC: *Alternaria solani* H-14, I-2 (1021)  
*Bipolaris sorokiniana* H-14, I-2 (1021)  
*Ceratocystis ulmi* H-14, I-2 (1021)  
*Colletotrichum pisi* H-14, I-2 (1021)  
*Oilex quinquefasciatus* H-2, I-10 (463)  
*Fusarium solani*

f. sp. phaseoli H-14, I-16 (362)

OR: H-19, I-2 (1021); H-24, I-7 (1228)

AP: Alk=I-7 (hordenine)(1392); Alk=I-10 (ergothioneine, trigonelline)(1392)

*Meloidogyne incognita* H-16, I-? (354)

*Meloidogyne* sp. H-16, I-20 (424)

Mosquitoes H-2, I-10 (101)

*Ophiobolus graminis* H-14, I-2 (1021)

*Pythium irregulare* H-14, I-2 (1021)

*Rhizoctonia solani* H-14, I-? (353)

*Verticillium albo-atrum* H-14, I-2 (1021)

-----  
*Averrhoa bilimbi* (Cucumber tree) Oxalidaceae

A B C D F G J M M M M N O  
 01 01 09 01 13 03 03 01 05 14 15 09 07

OC: *Drechslera oryzae* H-14, I-7 (113)

AP: Tri=I-7 (1390)

-----  
*Azadirachta indica* (Neem tree) Meliaceae

A B C D D E F F G J J J J K K M M M M M O  
 01 01 09 01 02 02 03 07 07 02 04 07 08 03 04 02 04 05 06 07 07  
 06 09 10 11 15

OC: *Acalymma vittata* H-4, 5, I-? (168, 469)

*Achaea janata* H-4, I-? (168)

*Acrida exatana* H-4, I-? (168)

*Agrotis ipsilon* H-4, I-? (168)

*Aleurothrixus floccosus* H-4, I-? (168);  
 H-5, I-? (469)

*Alternaria tenuis* H-14, I-? (539)

*Amsacta moorei* H-1, I-? (123, 505);  
 H-4, I-7 (87)

*Antestiopsis orbitalis bechuana* H-1, I-7  
 (852); H-3, I-10 (168)

*Antestiopsis* sp. H-1, I-? (725)

*Anthrenus flavipes* H-4, I-? (168)

*Antigastra catalaunalis* H-1, I-? (468)

*Aonidiella aurantii* H-4, I-? (168, 1139);  
 H-5, I-? (469)

*Aonidiella citrina* H-4, I-? (168, 1139);  
 H-5, I-? (469)

*Aphelenchus avenae* H-16, I-18 (100)

Aphids H-1, I-? (89)

*Aphis gossypii* H-1, I-? (116)

*Aphis mellifera* H-4, I-? (63)

*Argyrotaenia velutinana* H-4, I-? (63);  
 H-5, I-? (469)

*Atherigona soccata* H-1, I-? (342)

*Aulacophora foveicollis* H-4, I-? (168)

*Boarmia selenaria* H-1, I-? (345)

*Callosobruchus chinensis* H-3, I-10 (95,  
 124, 475, 516, 520, 1279); H-5, I-? (599)

*Callosobruchus maculatus* H-4, I-?  
 (168, 604, 878)

*Carpophilus hemipterus* H-5, I-10 (87, 469)

*Chirida bipunctata* H-1, I-? (124, 966)

*Chrotogonus trachypterus* H-4, I-? (168)

*Chrotoicetes terminifera* H-4, I-? (168)

*Cnaphalocrocis medinalis* H-1, I-? (51);  
 H-3, I-10 (134); H-4, I-10 (166)

Cockroaches H-2, I-? (1343)

*Colletotrichum atramentarium* H-14, I-?  
 (923)

*Conotrachelus nenuphar* H-4, 5, I-?  
 (63, 469)

*Corcyra cephalonica* H-4, I-? (95, 1687)

*Crocidolomia binotalis* H-1, I-12  
 (124, 1333)

*Cryptolestes pusillus* H-4, I-? (168)

*Culex fatigans* H-1, I-? (1279); H-2, I-12  
 (1267); H-4, I-? (63)

*Diabrotica undecimpunctata* H-4, 5, I-?  
 (63, 469)

*Diacrisia obliqua* H-4, I-? (168)

*Ditylenchus cypei* H-16, I-18 (100)

*Dysdercus cingulatus* H-7, I-? (119, 692)

*Dysdercus suturellus* H-4, I-? (168)

*Earias insulana* H-4, I-? (168, 346, 348)

*Ephesia cautella* H-4, I-? (168)

*Epilachna varivestis* H-4, I-? (168)

*Euproctis fraterna* H-1, I-? (124)

*Euproctis laniata* H-4, I-? (168)

*Euproctis lunata* H-4, I-? (365)

*Fusarium oxysporum*

f. sp. lycopersici H-14, I-18 (539, 541)

- Fusarium* sp. H-14, I-? (923)  
*Galleria mellonella* H-4, I-? (168)  
 Grasshoppers H-5, I-9 (148)  
*Helicotylenchus erythrinae* H-16, I-18 (541, 923)  
*Helicotylenchus indicus* H-16, I-4, 7, 8, 9, 13, 18, (793, 1123, 1335)  
*Heliothis amigera* H-1, I-? (124)  
*Heliothis virescens* H-4, I-? (168)  
*Hellula rogatalis* H-1, I-? (350)  
*Hirschmanniella oryzae* H-16, I-18 (1335)  
*Holotrichia consanguinea* H-6, I-7 (606)  
*Holotrichia insularis* H-6, I-7 (606)  
*Holotrichia serrata* H-6, I-7 (606)  
*Hoplolaimus indicus* H-16, I-4, 7, 8, 9, 13, 18 (100, 168, 538, 539, 541, 793, 923, 1123, 1335)  
*Indarbela quadrinotata* H-4, I-? (168)  
*Lasioderma serricornis* H-4, I-? (168)  
*Laspeyresia pomonella* H-4, 5, I-? (63, 469)  
*Latheticus oryzae* H-4, I-? (168)  
*Leptinotarsa decemlineata* H-4, I-? (168)  
*Leucinodes orbonalis* H-1, I-? (93, 126)  
*Lirionyma sativae* H-1, I-10 (1337)  
*Lirionyma trifolii* H-1, I-10, 12 (1334)  
*Locusta migratoria* H-1, I-? (878); H-1, I-10 (87); H-4, 5, I-7 (596)  
 Locusts H-1, I-? (866)  
*Lymantria dispar* H-4, I-? (168)  
*Meloidogyne arenaria* H-16, I-? (616); H-16, I-10 (1335)  
*Meloidogyne incognita* H-16, I-2; 7, 18 (100, 168, 539, 541, 542, 616, 793, 923, 1349)  
*Meloidogyne javanica* H-16, I-7, 18 (616, 922, 925, 962, 992, 1265, 1335)  
*Musca domestica* H-1, I-? (520, 1094)  
*Myloccerus* sp. H-1, I-? (93, 126)  
*Mythimna separata* H-3, I-10 (1341)  
*Nematodes* H-16, I-18 (1010, 1335)  
*Nephantis serinopa* H-1, I-? (124)  
*Nephotettix virescens* H-4, I-10, 12 (140, 141, 942, 1299, 1331, 1339)  
*Nilaparvata lugens* H-1, I-7, 10, 12 (50, 93, 126, 1289, 1331); H-2a, 4, I-10, 12 (141); H-4, I-10, 12 (166, 1338)  
*Oncopeltus fasciatus* H-3, I-? (130)  
*Ophiomyia reticulipennis* H-1, I-? (126)  
*Orseolia oryzae* H-4, I-? (63)  
*Oryzaephilus surinamensis* H-1, I-? (1284)  
*Panonychus citri* H-4, 5, 11, I-? (168, 469, 1139)  
*Paramyelois transitella* H-4, I-? (63)  
*Parasaissetia nigra* H-4, I-? (168)  
*Phyllocnistis citrella* H-1, I-? (93, 126)  
*Phyllotreta downsei* H-1, I-? (124)  
*Pieris brassicae* H-3, I-10 (168)  
*Piesma quadratum* H-3, I-? (168)  
*Planococcus citri* H-4, I-? (63, 1139); H-5, I-? (469)  
*Plutella xylostella* H-1, I-10 (124, 1336)  
*Poecilocera picta* H-4, I-? (168)  
*Popillia japonica* H-1, I-? (129); H-4, I-? (332); H-4, I-10 (1293)  
*Pratylenchus brachyurus* H-16, I-? (168); H-16, I-7 (1273, 1335)  
*Pratylenchus delattrei* H-16, I-? (93, 126)  
*Pratylenchus* sp. H-16, I-10 (756)  
*Rhizoctonia solani* H-14, I-? (541, 923); H-14, I-18 (539)  
*Rhizopertha dominica* H-1, I-? (124, 126, 454, 461, 520, 601, 878); H-1, I-12 (1117, 1124); H-5, I-10 (87)  
*Rhopalosiphum nymphaeae* H-1, I-? (168)  
*Rotylenchulus reniformis* H-16, I-7, 10, 18 (168, 538, 539, 793, 923, 1269, 1335)  
*Saissetia nigra* H-4, I-? (63)  
*Schistocerca gregaria* H-1, I-? (167, 369, 434, 878, 1001, 1277, 1279); H-4, I-7, 10, 12 (151, 611, 614, 615, 756, 1266, 1268, 1272); H-5, I-2, 5, 7, 10 (87, 611, 615, 1270, 1272)  
*Sclerotium rolfsii* H-14, I-10 (1300)  
*Sitophilus oryzae* H-3, 5, I-10 (87, 124, 126, 517, 601, 878, 888, 1279)  
*Sitotroga cerealella* H-1, I-7, 10 (88, 121, 124)  
*Sogatella furcifera* H-2a, I-10, 12 (141)  
*Spodoptera frugiperda* H-4, I-? (130, 1095)  
*Spodoptera littoralis* H-1, I-? (348)  
*Spodoptera litura* H-4, I-? (123, 124, 343, 348, 440, 1095, 1288); H-5, I-10 (347)  
*Stegobium paniceum* H-4, I-? (168)  
 Stored grain pests H-1, I-? (89); H-5, I-7, 9, 10 (148)  
 Stored rice pests H-1, I-7 (119)  
*Tribolium castaneum* H-4, I-? (168); H-5, I-10 (517)  
*Tribolium confusum* H-4, I-? (168)  
*Trogoderma granarium* H-1, I-? (454, 601, 878); H-4, I-? (168); H-5, I-10 (87, 167)  
*Tryporyza incertulas* H-1, I-? (93)  
 Tungro virus of rice H-21, I-10, 12 (140, 141, 942, 1299, 1331, 1339)  
*Tylenchorhynchus brassicae* H-16, I-10, 18 (100, 168, 538, 539, 617, 793, 923, 1335)  
*Tylenchorhynchus elegans* H-16, I-18 (1335)  
*Tylenchus filiformis* H-16, I-4, 7, 8, 9, 18 (538, 793, 1123)  
*Urentius echinus* H-4, I-? (63)  
*Urentius hystricellus* H-4, I-? (168)  
*Utetheisa pulchella* H-4, I-? (168)

OR: H-1, I-7, 9, 10 (50, 73, 80, 84, 88, 132, 420, 504, 1326); H-2, 4, I-7, 9 (107, 117, 220);  
 H-2a, 5, I-7 (116); H-2b, 4, 5, I-7, 10 (128); H-3, I-7, 10 (122); H-3, 4, I-? (1093);  
 H-3, 4, I-7, 8, 10 (132); H-4, I-10 (123, 124); H-5, I-7, 9, 10 (126, 220, 504); H-5,  
 16, 20, I-7, 10 (136); H-20, I-7 (420, 504); H-22, I-? (1287)  
 AP: Tri-I-10 (azadirachtin, meliantriol, salannin)(168)

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*Azolla* sp. (Water fern) Salviniaceae

B C D D J M  
 09 06 01 02 01 10

OC: Mosquitoes H-1, I-1 (472)

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*Baccharis coridifolia* (Not known) Asteraceae

A B C J  
 01 02 09 03

OC: *Attagenus piceus* H-4, I-6, 7, 8 (48)

AP: Alk-I-? (baccharine)(1392)

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*Baccharis floribunda* (Not known) Asteraceae

A B C J  
 01 02 09 11

OC: *Attagenus piceus* H-4, I-2 (48)

*Tineola bisselliella* H-4, I-2 (48)

OR: H-2, I-? (105)

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*Baccharis glutinosa* (Water willow) Asteraceae

A B C J M  
 01 02 09 03 09

OC: *Blattella germanica* H-2a, I-7 (48)

OR: H-32, I-6, 7 (401)

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*Baccharis halimifolia* (Consumption weed) Asteraceae

A B C D J  
 01 02 09 03 03

OC: *Pseudomonas solanacearum* H-18, I-8, 16 (945)

OR: H-15, 19, I-7 (651)

AP: Alk-I-6, 7 (1392)

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*Baccharis ramulosa* (Escobilla) Asteraceae

A B C D  
 01 02 09 01

OC: *Spodoptera frugiperda* H-1, I-1 (176)

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*Backhousia myrtifolia* (Grey myrtle) Myrtaceae

A C D M  
 01 09 01 04

OC: *Aedes* sp. H-2, 5, I-12 (101)

*Anopheles* sp. H-2, 5, I-12 (101)

OR: H-30, I-12 (101)

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*Baeckea frutescens* (Bruere de Tonkin) Myrtaceae

A B C D M M  
 01 02 09 01 15 17

OC: Ants H-1, I-6, 7 (1241)

*Gryllotalpa* sp. H-1, I-6, 7 (1241)

*Cnaphalocrocis medinalis* H-1, I-6, 7 (1241)